

Restrictive use of antibiotics in organic animal farming – a potential for safer, high quality products with less antibiotic resistant bacteria

Project leader: Søren Aabo, DTU

Partner countries:

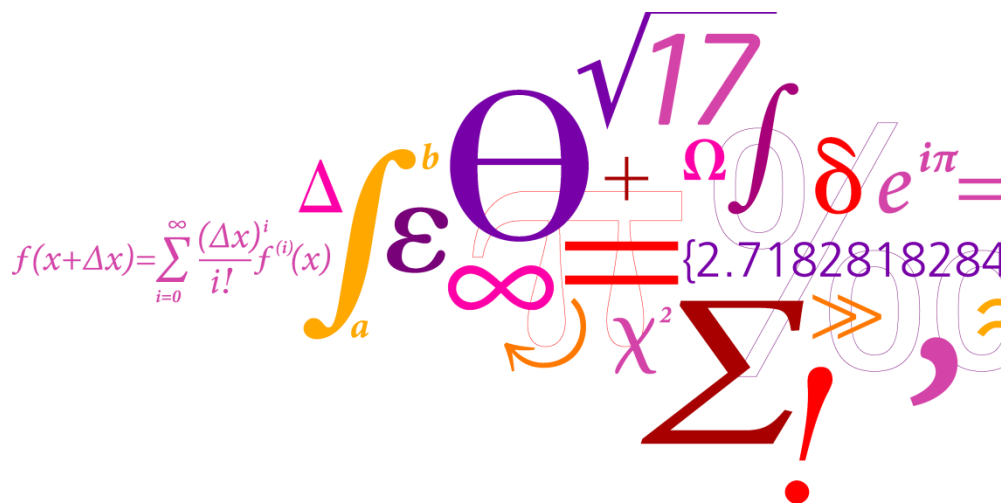
Denmark (DTU & UCPH)

Sweden (SVA)

France (ANSES)

Italy (IZSve)

Czech Rep. (VRI)



Background - SafeOrganic

- Organic production – specific management procedures (EU reg. 1804- 1999)
- Restricted use of antibiotic – outdoor housing of pigs
- Lower levels of AR in organic pigs have been suggested
- Higher food safety - important quality of organic pork - marketing advantage
- Possible contamination of organic meat from conventional pigs at slaughter
- Antibiotic consumption data is limited in animal production in EU
- No valid marker system for imprudent use of antibiotic per se
- Potential lack of credibility and lack of control options

Aim - SafeOrganic

To enable slaughterhouses to reduce spread of antibiotic resistant bacteria and organic farmers to market meat products of higher food safety quality

Objectives

- To document potential lower AR levels in organic pigs
- To investigate the level of AR cross-contamination at slaughter
- To establish of correlation between observed AR and consumption of antibiotics
- To display risk factors in organic pig farming related to development of AR
- To document the certainty of convenient sampling at slaughterhouse to display the herd status

SafeOrganic – Project structure

WP1: Project management (DTU-Food)

1.1-1.3 Meetings / Advisory committee / Reporting / Dissemination of results

WP2: Occurrence of antibiotic resistant bacteria (SVA)

2.1 Characterization of animal production systems

Characterization of factors potentially associated with development of antibiotic resistance

2.2 Convenient sampling

Does slaughterhouse samples state the bacteriological status at herd level?

2.3 Antibiotic resistance (AR)

Comparison - Organic / Conventional pigs
AR level and types (profiles)

WP3: Cross-contamination at slaughter (Anses)

3.1 Transfer of antibiotic resistance from conventional carcasses to organic carcasses during processing

WP4: Markers of antibiotic use (IZSve)

4.1 Characteristic AR patterns

AR as an indicator of antibiotic consumption level?? (control option)

4.2 Genotype diversity

Can genotype diversity be used to differentiate between meat of organic and conventional origin (control option)

4.3 AR genes and microbiota

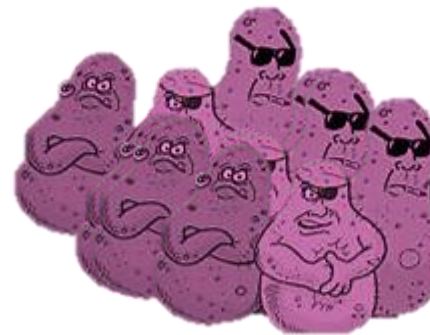
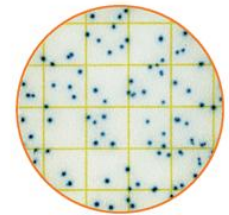
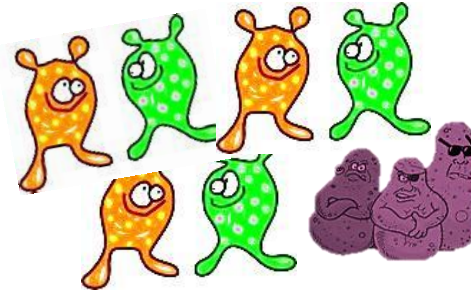
Assessment of differences between organic and conventional pigs

Work Package responsibility

WP1	Management	Søren Aabo	DTU, Denmark
	Assistent-manager	Annette Nygaard	DTU, Denmark
WP2	Management	Björn Bengtsson	SVA, Sweden
WP3	Management	Martine Denis	ANSES, France
WP4	Management	Antonia Ricci	IZSVe, Italy

WP2

Occurrence of antibiotic resistance in organic and conventional pigs



MIC

WP2

Can we define herd status by sampling at the slaughterhouse?



Herd

(rectal samples)



Slaughterhouse

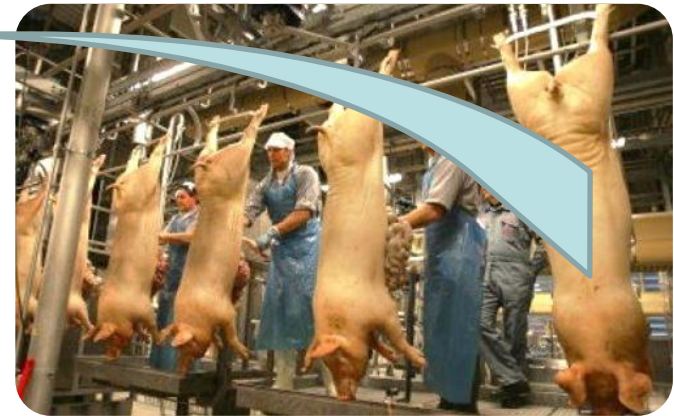
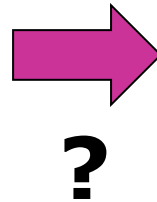
(colon content)

WP3

Transfer of antibiotic resistance during slaughter



Conventional pigs



Need for improved hygiene barrier??

WP4

Marker system for AB use

- Can AR be used as an indicator of the level antibiotic consumption? (control option) DK VET-STAT data
- Can genotype diversity be used to differentiate between meat of organic and conventional origin (control option)
- Assessment of differences in AR genes and microbiota between organic and conventional pigs (molecular methods)

Involvement of interest partners and added value of SafeOrganic

- Establishment of advisory committee - network
 - Representatives from organic animal producers, slaughter industry and consumer organizations.
 - The committee is yet to established.

- Transnational platform for knowledge on transfer on AR – enhancing the overall understanding

- Expected results related to sustaining the food safety quality of organic pork in EU
 - Documentation of AR meat quality
 - Recommendations for slaughter of organic pigs
 - Control options for imprudent use of antibiotics

- Final work shop and knowledge dissemination



Thank you for your attension